

heart failure

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Introduction.— In patients with chronic heart failure, echocardiography provides important information on the mechanism of heart failure (HF) and defining the severity of the disease.

The aim of our study is to identify the echocardiographic characteristics of patients with chronic heart failure (CHF), and to determine the predictors of improvement of echocardiographic parameters.

Materiels and methods.— This was a single centre, observational study. We included 1578 patients followed for CHF (heart failure which had lasted for more than 1 year) in Ibn Rochd Center of Cardiology from May 2006 to October 2010. All patients had a complete Doppler echocardiographic examination and all parameters were analysed. During follow-up, we defined an improvement of echocardiographic parameters by an increase of left ventricular ejection fraction > 5% compared to baseline, change in cardiac filling pressures assessed by Doppler echocardiography from restrictive to non-restrictive pattern and decrease of RVSP by more than 20% compared to baseline.

Results.— The mean age of our patients was 64.82 ± 10.12 years (16–100), and 64% were men. CHF was due to ischaemic heart disease in 55%. Mean left ventricular ejection fraction (LVEF; biplane Simpson method) was 35% (10–69%). LVEF was $\leq 35\%$ in 897 patients (57%), 35–50% in 505 patients (32%), and $\geq 50\%$ only in 176 patients (11%). Mean Left ventricular end diastolic diameter (LVEDD) was 58 mm (32–89), restrictive mitral inflow was found in 21% of patients and high LV filling pressures in 30% of patients. Pulmonary arterial systolic pressure was more than 35 mmHg in 22% of patients. The predictors of improvement in echocardiographic data were female sex, sinus rhythm and high doses of diuretics.

Conclusion.— Echocardiography is well qualified to meet the growing need for non-invasive imaging in the HF population. In fact, echocardiography provides important data for therapeutic decision-making and improves the outcome of patients with CHF.

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Predictors of outcome in 369 patients with heart failure with preserved ejection fraction

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Introduction.— A heart failure with preserved ejection fraction (HFPEF) is present in half the patients with heart failure (HF); the prognosis in more recent studies has been shown to be essentially similar to that of systolic HF. The objective of our study is to define the clinical, biological and echocardiographic predictors of outcome in patients with HFPEF.

Patients and methods.— We included 1548 patients, admitted in Ibn Rochd Center of Cardiology from May 2006 to October 2010. HFPEF was defined as LVEF $\geq 45\%$ and receiving a loop diuretic for breathlessness. All patients were evaluated clinically with monitoring of blood pressure (BP), 6-min walk test and electrocardiogram. Two-dimensional echocardiography and laboratory tests were performed in all patients.

patients were hypertensive and 33% were diabetic, and 61.9% were in NYHA class II, and 23.8% were in NYHA class III. The median of 6-min walk test was 118 m. The mean LVEF was 49% (45–74). Hypertensive (44.4%) and ischemic heart disease (17.46%) remain the two most frequent etiologies. During a median follow-up of 32 months, mortality was 16%. By univariable analysis, NYHA class; 6-min walk distance; atrial fibrillation and systolic pulmonary artery pressure (SPAP) were associated with an adverse prognosis.

In multivariable analysis, increasing age, NYHA class, and renal failure were predictors of adverse prognosis; betablockers treatment, increasing Hb and female sex were predictors of a better outcome.

Conclusion.— As several studies, clinical and biological variables were more powerful predictors of outcome in HFPEF than echocardiographic variables which are recommended to identify diastolic function.

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Not only E/Ea ratio during exercise but arterial compliance correlates with six-minute walking test in patients with heart failure with normal ejection fraction

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Purpose.— Although heart failure with normal ejection fraction (HFNEF) is a frequent disease, physiopathologic mechanisms are still controversial. We hypothesized that elevated arterial stiffness and impaired diastolic reserve could explain symptoms at exercise.

Methods.— From our heart failure clinic (614 patients), we selected 85 patients with a HFNEF syndrom (ESC 2007 criteria). Thirty-two were on sinus rhythm and could perform an echocardiography at rest and peak exercise with measurement of diastolic transmitral parameters (E and A), and tissue Doppler velocities (early diastolic Ea, and systolic Sa). Central arterial stiffness parameters were assessed noninvasively by tonometry: carotidofemoral pulse wave velocity (PWVcf), central pulse pressure (PP), and Augmentation Index (AIx@75). Distance during a six-minute walking test (6MWT) and a semi-quantitative assessment of peak exercise dyspnoea evaluated functional performances.

Results.— Mean age was 76 ± 11 years, with a high prevalence of hypertension (66%). PWVcf was increased at 10 ± 2.3 m/s, and distance at 6MWT was 373 ± 114 m. In univariate analysis, distance correlated with PWVcf ($R = -0.82$, $P < 0.0001$), heart rate at rest ($R = -0.39$, $P = 0.045$), and E/Ea at rest ($R = -0.48$, $P = 0.012$) but almost at peak exercise ($R = -0.61$, $P < 0.01$). Exertional dyspnoea correlated with PWVcf too ($P = 0.025$), and with diastolic and systolic parameters measured at peak exercise (E/Ea: $P = 0.02$; Sa: $P = 0.014$). In multivariate analysis, PWVcf was the strongest predictor of distance at 6MWT, with a lower influence of heart rate, and no significant influence of diastolic and systolic functions.

Conclusion.— In HFNEF, different interlinked mechanisms can lead to functional limitation and dyspnoea at exercise, but central arterial compliance and ventricular-arterial coupling impairment play a key role.